9 VAC 20-80-250. Sanitary landfill.

The provisions of this section shall apply to the siting, design, construction, operation, monitoring, and closure of a sanitary landfill.

A. Siting.

1. Airport safety.

a. Owners or operators of all sanitary landfills that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft shall demonstrate that the units are designed and operated so that the facility does not pose a bird hazard to aircraft.

b. Owners or operators proposing to site new sanitary landfill and lateral expansions of an existing facility within a five mile radius of any airport runway end used by turbojet or piston-type aircraft shall notify the affected airport and the Federal Aviation Administration (FAA). Owners and operators should also be aware that effective April 5, 2000, 49 USC § 44718 (d), restricts the establishment of landfills within six miles of public airports under certain conditions. Provisions for exemptions from this law also exist.

c. The owner or operator of an existing facility shall submit the demonstration in subdivision 1 a of this subsection to the director by October 9, 1993.

2. Floodplains. Owners or operators of all sanitary landfills located in 100-year floodplains shall demonstrate that the facility will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment.

The owner or operator of an existing facility shall submit the demonstration to the director by October 9, 1993. No new sanitary landfill after July 1, 1999 shall be constructed in a 100-year flood plain.

3. Unstable areas.

a. Owners or operators of all sanitary landfills located in an unstable area shall demonstrate that engineering measures have been incorporated into the facility's design to ensure that the integrity of the structural components of the facility will not be disrupted. He shall consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in differential settling and subsequent failure of structural components;

(2) On-site or local geologic or geomorphologic features that may result in sudden or non-sudden events and subsequent failure of structural components; and

(3) On-site or local man-made features or events (both surface and subsurface) that may result in sudden or non-sudden events and subsequent failure of structural components.

b. The owner or operator of an existing facility shall submit the demonstration to the director by October 9, 1993.

4. Wetlands.

a. After July 1, 1999, new sanitary landfills and lateral expansions of existing facilities, except those impacting less than 1.25 acres of nontidal wetlands, shall not

be constructed in any tidal wetland or nontidal wetland contiguous to any surface water body.

b. Construction in wetlands is allowed for some localities under the provisions of § 10.1-1408.5. No additional exemptions from the requirements of this subdivision will be allowed unless the provisions of §10.1-1408.5 E have been completed. ~~will be allowed only~~ Any construction in wetlands that is allowed is also subject to appropriate approvals under the provisions of 9 VAC 25-210. In addition, the following additional demonstrations must be made to the director:

(1) Where applicable under § 404 of the Clean Water Act or § 62.1-44.15:5 of the Virginia wetlands laws, the presumption that a practicable alternative to the proposed landfill is available that does not involve wetlands is clearly rebutted;

(2) The construction and operation of the facility will not:

(a) Cause or contribute to violations of any applicable water quality standard;

(b) Violate any applicable toxic effluent standard or prohibition under § 307 of the Clean Water Act;

(c) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(d) Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(3) The facility will not cause or contribute to significant degradation of wetlands. The owner or operator shall demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:

(a) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the facility;

(b) Erosion, stability, and migration potential of dredged and fill materials used to support the facility;

(c) The volume and chemical nature of the waste managed in the facility;

(d) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(e) The potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(f) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(4) To the extent required under § 404 of the Clean Water Act or applicable Virginia wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subdivision 4 b (1) of this subsection, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient other information is available to enable the department to make a reasonable determination with respect to these demonstrations.

5. Fault areas. New sanitary landfills and lateral expansions of existing facilities shall not be located within 200 feet of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the director that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the facility and will be protective of human health and the environment.

6. Seismic impact zones. New sanitary landfills and lateral expansions of existing facilities shall not be located in seismic impact zones, unless the owner or operator demonstrates to the director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

7. No sanitary landfill disposal unit or leachate storage unit shall extend closer than:

a. 100 feet of any regularly flowing surface water body or river;

b. 50 feet from the facility boundary;

c. 500 feet of any well, spring or other ground water source of drinking water in existence at the time of application;

d. One thousand feet from the nearest edge of the right-of-way of any interstate or primary highway or 500 feet from the nearest edge of the right-of-way of any other highway or city street except the following:

(1) Units which are screened by natural objects, plantings, fences, or other appropriate means so as to minimize the visibility from the main-traveled way of the highway or city street, or otherwise removed from sight;

(2) Units which are located in areas which are zoned for industrial use under authority of state law or in unzoned industrial areas as determined by the Commonwealth Transportation Board;

(3) Units which are not visible from the main-traveled way of the highway or city street.

NOTE: This requirement is based on § 33.1-348 of the Code of Virginia. The regulatory responsibility for this standard rests with the Virginia Department of Transportation.

e. 200 feet from the active filling areas to any residence, school, hospital, nursing home or recreational park area in existence at the time of application.

NOTE: All distances are to be measured in the horizontal plane.

8. No new facility shall be located in areas where ground water monitoring cannot be conducted in accordance with subsection D of this section unless this requirement is suspended by the director pursuant to subdivision 1 c of this subsection.

9. No new sanitary landfill shall be constructed:

a. Within five miles upgradient of any existing surface or ground water public water supply intake or reservoir except as allowed under the provisions of § 10.1-1408.4 B 3 of the Code of Virginia. No additional exemptions from the requirements of

this subdivision will be allowed unless the provisions of §10.1-1408.4 C have been completed;

b. In any area vulnerable to flooding resulting from dam failures;

c. Over a sinkhole or less than 100 feet over a solution cavern associated with karst topography;

d. In any park or recreational area, wildlife management area or area designated by the federal or state agency as the critical habitat of any endangered species; or

e. Over an active fault.

10. Certain site characteristics may also prevent approval or require substantial limitations on the site use or require incorporation of sound engineering controls. Examples include but are not limited to:

a. Excessive slopes (greater than 33%);

b. Lack of daily cover materials;

c. Springs, seeps, or other ground water intrusion into the site;

d. The presence of gas, water, sewage, or electrical or other transmission lines under the site; or

e. The prior existence on the site of an open dump, unpermitted landfill, lagoon, or similar unit, even if such a unit is closed, will be considered a defect in the site unless the proposed unit can be isolated from the defect by the nature of the unit design and the ground water for the proposed unit can be effectively monitored.

11. Specific site conditions may be considered in approving an exemption of a site from the siting restrictions of subdivision 10 of this subsection.

12. Facilities unable to furnish the demonstration required under subdivision 1 c, 2, or 3 b of this subsection shall close in accordance with the requirements of subsection E of this section and initiate post-closure care as required by subsection F of this section by October 9, 1996.

13. The deadline for closure required by subdivision 12 of this subsection may be extended by the director up to two years if the owner or operator demonstrates that:

a. There is no alternate disposal capacity; and

b. There is no immediate threat to human health and the environment.

B. Design/construction. The following design and construction requirements apply to all sanitary landfills:

1. All facilities shall be surrounded by a means of controlling vehicular access and preventing illegal disposal. All access will be limited by gates, and such gates shall be securable and equipped with locks.

2. Access roads extending from the public road to the entrance of a facility or site and any public access area shall be all-weather, and shall be provided with a base capable of withstanding anticipated heavy vehicle loads.

3. Each solid waste disposal facility should be provided with an adequately lighted and heated shelter where operating personnel can exercise site control and have access to essential sanitation facilities. Lighting, heat and sanitation facilities may be provided by portable equipment as necessary.

4. Aesthetics shall be considered in the design of a facility or site. Use of artificial or natural screens shall be incorporated into the design for site screening and noise attenuation to less than 80 dBA at the facility boundary. The design should reflect those requirements, if any, that are determined from the long-range plan for the future use of the site.

5. All sanitary landfills shall be equipped with permanent or mobile telephone or radio communications.

6. All facilities shall be designed to provide and maintain:

a. A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

b. A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm. Run-off from the active portion of the landfill unit shall be handled in a manner that will not cause the discharge of:

(1) Pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but-not limited to, the Virginia Pollutant Discharge Elimination system (VPDES) requirements; and

(2) Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, as amended.

c. Drainage structures to prevent ponding and erosion, and to minimize infiltration of water into solid waste cells.

7. A ground water monitoring system shall be installed at all sanitary landfills in accordance with 9 VAC 20-80-300.

8. Each site design shall include a gas management system to control decomposition gases generated within a sanitary landfill in accordance with 9 VAC 20-80-280.

9. All sanitary landfills shall be underlain by a composite liner system as follows:

a. Base preparation to protect the liner by preventing liner failure through subsidence or structural failure of the liner system.

b. A lower liner consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec.

c. An upper component consisting of a minimum 30-mil flexible membrane liner (FML). If high density polyethylene (HDPE) is used as an FML, it shall be at least 60-mil thick. The FML component shall be:

(1) Installed in direct and uniform contact with the compacted soil liner;

(2) Placed in accordance with an approved construction quality control/quality assurance program submitted with the design plans; and

(3) Placed with a minimum of two percent slope for leachate drainage.

10. The applicant may submit a petition in accordance with 9 VAC 20-80-780 to allow for an alternate design of the liner system.

11. The design shall provide for leachate management which shall include its collection, treatment, storage, and disposal. Leachate control and monitoring systems are subject to the requirements in 9 VAC 20-80-290.

12. Landfill site designs shall provide sufficient area to allow for management of leachate. Leachate from a solid waste disposal facility shall not be permitted to drain or discharge into surface waters except when authorized under a VPDES permit issued by the State Water Control Board or otherwise approved by that agency.

13. Compacted lifts of deposited waste shall be designed for a height compatible with daily waste volumes keeping work face areas to a minimum and allowing for a daily compacted cover. Lift height is not recommended to exceed 10 feet for maximum compaction.

14. Final contours of the finished landfill shall be specified. Design of final contours shall consider subsequent site uses, existing natural contours, surface water management requirements, and the nature of the surrounding area. The final elevation of the landfill shall be limited by the structural capacity of the liner and leachate collection and removal system and by stability of foundation and slopes. The final contour shall not cause structural damage or collapse of the leachate collection system.

15. Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished

slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. The top slope shall be at least two percent after allowance for settlement to prevent ponding of water.

16. Two survey bench marks shall be established and maintained on the landfill site, and their location identified or recorded on drawings and maps of the facility.

17. Each sanitary landfill shall be constructed in accordance with approved plans, which shall not be subsequently modified without approval by the department.

18. Construction quality assurance program.

a. General.

(1) A construction quality assurance (CQA) program is required for all landfill units. The program shall ensure that the constructed unit meets or exceeds all design criteria and specifications in the permit. The program shall be developed and implemented under the direction of a CQA officer who is a registered professional engineer.

(2) The CQA program shall address the following physical components, where applicable:

(a) Foundations;

(b) Low-hydraulic conductivity soil liners;

(c) Synthetic membrane liners;

(d) Leachate collection and removal systems;

(e) Gas management components; and

(f) Final cover systems.

b. Written CQA plan. The owner or operator shall develop and implement a written CQA plan. The plan shall identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan shall include:

(1) Identification of applicable units, and a description of how they will be constructed.

(2) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.

(3) A description of inspection and sampling activities for all unit components identified in subdivision 18 a (2) of this subsection including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description shall cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded.

c. Contents of program. The CQA program shall include observations, inspections, tests, and measurements sufficient to ensure:

(1) Structural stability and integrity of all components of the unit identified in subdivision 18 a (2) of this subsection;

(2) Proper construction of all components of the liners, leachate collection and removal system, gas management system, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;

(3) Conformity of all materials used with design and other material specifications.

(4) The permeability of the liner soil. Soil liner construction will be demonstrated on a test pad where permeability will be confirmed using an in situ testing method.

d. Certification. Waste shall not be received in a landfill unit until the owner or operator has submitted to the department by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of this section. Documentation supporting the CQA officer's certification shall be submitted to the department upon request. An additional engineer’s certification is required under the provisions of 9 VAC 20-80-550 A 1.

C. Operation.

1. No hazardous wastes as defined by the Virginia Hazardous Waste Management Regulations (9 VAC 20-60) other wastes listed in 9 VAC 20-80-250 C 17, PCB waste or regulated medical waste shall be accepted at the landfill except as specifically authorized by the facility permit or by the director. The owner or operator shall implement an inspection program to be conducted by landfill personnel to detect and prevent disposal of such wastes. In addition to implementing the requirements of the

control program for unauthorized waste in 9 VAC 20-80-113, the program shall include, at a minimum:

a. The procedures for the routine monitoring and observation of incoming waste at the working face of the landfill;

b. The procedures for random inspections of incoming loads to detect whether incoming loads contain regulated hazardous wastes, PCB wastes, regulated medical waste, or other unauthorized solid waste and ensure that such wastes are not accepted at the facility. The owner or operator shall inspect a minimum of 1.0% of the incoming loads of waste. In addition, if the facility receives waste generated outside of Virginia and the regulatory structure in that jurisdiction allows for the disposal or incineration of wastes as municipal solid waste that Virginia's laws and regulations prohibit or restrict, the facility shall inspect a minimum of 10% of the incoming loads of waste from that jurisdiction. All facilities receiving waste generated outside of Virginia shall submit an evaluation consistent with 9 VAC 20-80-113 D;

c. Records of all inspections, to include at a minimum time and date of the inspection, the personnel involved, the hauler, the type of waste observed, the identity of the generator of the waste if it can be determined, the location of the facility where the waste was handled prior to being sent to the landfill and the results of the inspection. All records associated with unauthorized waste monitoring and incidents shall be retained on-site for a minimum of three years and shall be available for inspection by the department;

d. Training of facility personnel to recognize and manage regulated hazardous waste, PCB wastes, regulated medical waste, and other unauthorized solid wastes;

e. Notification of the department if a regulated hazardous waste, PCB waste, regulated medical waste or other unauthorized waste is discovered at the facility. This notification will be made orally as soon as possible, but no later than 24 hours after the occurrence and shall be followed within 10 days by a written report that includes a description of the event, the cause of the event, the time and date of the event and the actions taken to respond to the event; and

f. All regulated medical waste, PCB waste or other unauthorized solid waste that are detected at a facility shall be isolated from the incoming waste and properly contained until arrangements can be made for proper transportation for treatment or disposal at an approved facility.

2. Compaction and cover requirements.

a. Unless provided otherwise in the permit, solid waste shall be spread into two-foot layers or less and compacted at the working face, which shall be confined to the smallest area practicable.

b. Lift heights shall be sized in accordance with daily waste volumes. Lift height is not recommended to exceed 10 feet.

c. Daily cover consisting of six inches of compacted soil or other approved material shall be placed upon all exposed solid waste prior to the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. Alternate materials of an alternate thickness may be

approved by the director if the owner or operator demonstrates that the alternate material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. At least three days of acceptable cover soil or approved material at the average usage rate should be maintained at the landfill or readily available at all times.

d. Intermediate cover of at least six inches of additional compacted soil shall be applied whenever an additional lift of refuse is not to be applied within 30 days. Further, all areas with intermediate cover exposed shall be inspected as needed, but not less than weekly. Additional cover material shall be placed on all cracked, eroded, and uneven areas as required to maintain the integrity of the intermediate cover system.

e. Final cover construction will be initiated in accordance with the requirements of subdivision E 1 b of this section when the following pertain:

(1) An additional lift of solid waste is not to be applied within one year.

(2) Any area of a landfill attains final elevation and within 90 days after such elevation is reached. The director may approve alternate timeframes if they are specified in the facility's closure plan.

(3) An entire landfill's permit is terminated for any reason, and within 90 days of such denial or termination.

f. Vegetative cover with proper support layers shall be established and maintained on all exposed final cover material within four months after placement, or as specified by the department when seasonal conditions do not permit. Mowing will

be conducted a minimum of twice a year or at a frequency suitable for the species of vegetative cover as specified in the facility permit.

g. Areas where waste has been disposed that have not received waste within 30 days will not have slopes exceeding the final cover slopes specified in the permit or 33%, whichever is least.

3. Access to a solid waste disposal facility shall be permitted only when an attendant is on duty and only during daylight hours, unless otherwise specified in the facility permit.

4. Disease vectors shall be controlled using techniques appropriate for the protection of human health and the environment.

5. Safety hazards to operating personnel shall be controlled through an active safety program consistent with the requirements of 29 CFR Part 1910.

6. Adequate numbers and types of properly maintained equipment shall be available to a facility for operation. Provision shall be made for substitute equipment to be available within 24 hours should the former become inoperable or unavailable. Operators with training appropriate to the tasks they are expected to perform and in sufficient numbers for the complexity of the site shall be on the site whenever it is in operation. Equipment and operators provided will not be satisfactory unless they ensure that the site is managed with a high degree of safety and effectiveness.

7. Owners or operators shall implement a gas management plan in accordance with 9 VAC 20-80-280 that will ensure that:

a. The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and

b. The concentration of methane gas does not exceed the lower explosive limit for methane at the facility boundary.

8. Burning waste.

a. Owners or operators shall ensure that the units do not violate any applicable requirements developed by the State Air Pollution Control Board or promulgated by the EPA administrator pursuant to § 110 of the Clean Air Act, as amended (42 USC §§ 7401 to 7671q).

b. Open burning of solid waste, except for infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations is prohibited. There shall be no open burning permitted on areas where solid waste has been disposed or is being used for active disposal.

9. The owner or operator shall be responsible for extinguishing any fires that may occur at the facility. A fire control plan will be developed which outlines the response of facility personnel to fires. The fire control plan will be provided as an attachment to the emergency contingency plan required under the provisions of 9 VAC 20-80-520 C 2 k. The fire control plan will be available for review upon request by the public.

10. Solid waste shall not be deposited in, nor shall it be permitted to enter any surface waters or ground waters.

11. Owners or operators shall maintain the run-on/runoff control systems designed and constructed in accordance with subdivision B 6 of this section.

12. Sanitary landfills shall not:

a. Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act (33 USC § 1251 et seq.), including, but not limited to, the Virginia Pollutant Discharge Elimination System (VPDES) requirements and Virginia Water Quality Standards (9 VAC 25-260).

b. Cause the discharge of a nonpoint source of pollution to waters of the United States, including wetlands, that violates any requirement of an area-wide or state-wide water quality management plan that has been approved under § 208 or 319 of the Clean Water Act (33 USC § 1251 et seq.), as amended or violates any requirement of the Virginia Water Quality Standards (9 VAC 25-260).

13. Housekeeping.

a. Litter and blowing paper shall be confined to refuse holding and operating areas by fencing or other suitable control means.

b. Dust and odors shall be controlled so they do not constitute nuisances or hazards.

c. Salvaging may be permitted by a solid waste disposal facility operator, but shall be controlled within a designated salvage area to preclude interference with operation of the facility and to avoid the creation of hazards or nuisances.

d. Fugitive dust and mud deposits on main off-site roads and access roads shall be minimized at all times to limit nuisances.

e. Internal roads in the landfill shall be maintained to be passable in all weather by ordinary vehicles. All operation areas and units shall be accessible; gravel or other finish materials are usually required to accomplish this. Provisions shall be made to prevent tracking of mud onto public roads by vehicles leaving the site.

f. The open working face of a landfill shall be kept as small as practicable, determined by the tipping demand for unloading.

g. A sanitary landfill which is located within 10,000 feet of any airport runway used for turbojet aircraft or 5,000 feet of any airport runway used by only piston type aircraft, shall operate in such a manner that the facility does not increase or pose additional bird hazards to aircraft.

h. All facility appurtenances listed in subsection B of this section shall be properly maintained. These appurtenances include, but are not limited to, access controls, shelters, communications equipment, run-on and run-off controls, gas and ground water systems, liner systems, leachate collection control systems and the landfill cap.

14. Ground water monitoring program meeting the requirements of subsection D of this section shall be implemented.

15. A corrective action program meeting the requirements of 9 VAC 20-80-310 is required whenever the ground water protection standard is exceeded.

16. Sanitary landfills may receive the following types of solid wastes subject to specific limitations in the permit:

a. Agricultural waste.

b. Ashes and air pollution control residues that are not classified as hazardous waste. Incinerator and air pollution control residues should be incorporated into the working face and covered at such intervals as necessary to prevent them from becoming airborne.

c. Commercial waste.

d. Compost.

e. Construction waste.

f. Debris waste.

g. Demolition waste.

h. Discarded material.

i. Garbage.

j. Household waste.

k. Industrial waste meeting all criteria contained herein.

l. Inert waste.

m. Institutional waste except regulated medical waste as specified in the Regulated Medical Waste Management Regulations (9 VAC 20-120).

n. Municipal solid waste.

o. Putrescible waste. Occasional animal carcasses may be disposed of within a sanitary landfill. Large numbers (over 20 cy) of animal carcasses may be received with prior notification of the department. When large numbers of carcasses are

received, they shall be placed in a separate area within the disposal unit and provided with a cover of compacted soil or other suitable material.

p. Refuse.

q. Residential waste.

r. Rubbish.

s. Scrap metal.

t. Sludges. Water treatment plant sludges containing no free liquid and stabilized, digested or heat treated wastewater treatment plant sludges containing no free liquid may be placed on the working face along with municipal solid wastes and covered with soil or municipal solid wastes. The quantities accepted should be determined by operational conditions encountered at the working face. For existing facilities without an adequate leachate collection system, only a limited quantity of sludge may be accepted. A maximum ratio of one ton of sludge per five tons of solid waste per day will be considered. Generation of leachate will be a basis for restriction of sludge disposal at such existing facilities.

u. Trash.

v. White goods. Provided that all white goods are free of chlorofluorocarbons and PCBs prior to placement on the working face.

w. Nonregulated hazardous wastes and treated wastes rendered nonhazardous by specific approval only.

x. Special wastes as approved by the director.

y. Waste oil that has been adequately adsorbed in the course of a site cleanup.

z. Vegetative waste.

aa. Yard waste.

17. Sanitary landfills may not receive the following wastes:

a. Free liquids.

(1) Bulk or noncontainerized liquid waste, unless:

(a) The waste is household waste; or

(b) The waste is leachate or gas condensate derived from that landfill and the facility is designed with a composite liner and leachate collection system as described in subdivision B 9 of this section and 9 VAC 20-80-290 B; or

(2) Containers holding liquid waste, unless:

(a) The container is a small container similar in size to that normally found in household waste;

(b) The container is designed to hold liquids for use other than storage; or

(c) The waste is household waste.

b. Regulated hazardous wastes.

c. Solid wastes, residues, or soils containing more than 1.0 ppb (parts per billion) TEF (dioxins).

d. Solid wastes, residues, or soils containing 50.0 ppm (parts per million) or more of PCB's except as allowed under the provisions of 9 VAC 20-80-650.

e. Unstabilized sewage sludge as defined by the Department of Health or sludges that have not been dewatered.

f. Pesticide containers that have not been triple rinsed and crushed.

g. Drums that are not empty, properly cleaned and opened.

h. Contaminated soil unless approved by the director in accordance with the requirements of 9 VAC 20-80-630 or 9 VAC 20-80-700.

18. Reasonable records to include date, quantity by weight or volume, and origin shall be maintained on solid waste received and processed to fulfill the requirements of the Solid Waste Information and Assessment Program, the Control Program for Unauthorized Waste. Such information shall be made available to the department for examination or use when requested.

D. Ground water monitoring. Ground water monitoring program shall be instituted at all sanitary landfills in accordance with the requirements contained in 9 VAC 20-80-300.

E. Closure.

1. Closure criteria. All sanitary landfills shall be closed in accordance with the procedures set forth as follows:

a. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, the post-closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to the ground water, surface water, decomposition gas migration, or to the atmosphere.

b. Final cover system. Owner or operator of all sanitary landfills shall install a final cover system that is designed to achieve the performance requirements of subdivision 1 a of this subsection.

(1) The final cover system shall be designed and constructed to:

(a) Have an 18-inch infiltration layer with a hydraulic conductivity less than or equal to the hydraulic conductivity of any bottom liner system or natural subsoils present, or a hydraulic conductivity no greater than $1x10^{-5}$ cm/sec, whichever is less; and

(b) Minimize infiltration through the closed disposal unit by the use of an infiltration layer that is constructed of earthen material; and

(c) Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of 6 inches of earthen material that is capable of sustaining native plant growth, and provide for protection of the infiltration layer from the effects of erosion, frost, and wind.

(2) Finished side slopes shall be stable and be configured to adequately control erosion and runoff. Slopes of 33% will be allowed provided that adequate runoff controls are established. Steeper slopes may be considered if supported by necessary stability calculations and appropriate erosion and runoff control features. All finished slopes and runoff management facilities shall be supported by necessary calculations and included in the design manual. To prevent ponding of water, the top slope shall be at least two percent after allowance for settlement.

2. The director may approve an alternate final cover design that includes:

a. An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in subdivision 1 b (1) (a) of this subsection; and

b. An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in subdivision 1 b (1) (c) of this subsection.

3. Closure plan and amendment of plan.

a. The owner or operator of a solid waste disposal facility shall have a written closure plan. This plan shall identify the steps necessary to completely close the facility at the point of the permit period when the operation will be the most extensive and at the end of its intended life. The closure plan shall include, at least:

(1) A description of those measures to be taken and procedures to be employed to comply with this subsection.

(2) An estimate of the largest area ever requiring a final cover as required at any time during the active life;

(3) An estimate of the maximum inventory of wastes ever on-site over the active life of the landfill facility; and

(4) A schedule for final closure which shall include, at a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure.

b. The owner or operator may amend his closure plan at any time during the active life of the facility. The owner or operator shall so amend his plan any time changes

in operating plans or facility design affects the closure plan. The amended closure plan shall be placed in the operating record.

c. The owner or operator shall notify the department whenever an amended closure plan has been prepared and placed in the operating record.

d. At least 180 days prior to beginning closure of each solid waste disposal unit, the owner or operator shall notify the department of the intent to close.

e. If the owner or operator intends to use an alternate final cover design, he shall submit a proposed design meeting the requirements of subdivision 2 of this subsection to the department at least 180 days before the date he expects to begin closure. The director will approve or disapprove the plan within 90 days of receipt.

f. Closure plans, and amended closure plans not previously approved by the director shall be submitted to the department at least 180 days before the date the owner or operator expects to begin construction activities related to closure. The director will approve or disapprove the plan within 90 days of receipt.

4. Time allowed for closure.

a. The owner or operator shall begin closure activities of each unit no later than 30 days after the date on which the unit receives the known final receipt of wastes or, if the unit has remaining capacity and there is a reasonable likelihood that the unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the director if the owner or operator demonstrates that the unit has the capacity to receive additional wastes and the owner or operator has taken and will

continue to take all steps necessary to prevent threats to human health and the environment from the unclosed unit.

b. The owner or operator shall complete closure activities of each unit within six months following the beginning of closure. The director may approve a longer closure period if the owner or operator can demonstrate that the required or planned closure activities will, of necessity, take longer than six months to complete; and that the owner or operator has taken all steps to eliminate any significant threat to human health and the environment from the unclosed but inactive unit.

5. Closure implementation.

a. The owner or operator shall close each unit with a final cover as specified in subdivision 1 b of this subsection, grade the fill area to prevent ponding, and provide a suitable vegetative cover. Vegetation shall be deemed properly established when there are no large areas void of vegetation and it is sufficient to control erosion.

b. Following construction of the final cover system for each unit, the owner or operator shall submit to the department a certification, signed by a registered professional engineer verifying that closure has been completed in accordance with the requirements of this part. This certification shall include the results of the CQA/QC requirements under subdivision B 18 a (2) (e) of this section.

c. The owner or operator shall properly bait the site for rodent and vector control before final closure is initiated.

d. Following the closure of all units the owner or operator shall:

(1) Post one sign at the entrance of the facility notifying all persons of the closing, and providing a notice prohibiting further receipt of waste materials. Further, suitable barriers shall be installed at former accesses to prevent new waste from being deposited.

(2) Within 90 days, submit to the local land recording authority a survey plat prepared by a professional land surveyor registered by the Commonwealth or a person qualified in accordance with Title 54.1 of the Code of Virginia indicating the location and dimensions of landfill disposal areas. Monitoring well locations should be included and identified by the number on the survey plat. The plat filed with the local land recording authority shall contain a note, prominently displayed, which states the owner's or operator's future obligation to restrict disturbance of the site as specified.

(3) Record a notation on the deed to the facility property, or on some other instrument which is normally examined during title searches, notifying any potential purchaser of the property that the land has been used to manage solid waste and its use is restricted under subdivision F 4 c of this section. A copy of the deed notation as recorded shall be filed with the department.

(4) Submit to the department a certification, signed by a registered professional engineer, verifying that closure has been completed in accordance with the requirements of subdivision 5 d (1) through 5 d (3) of this section and the facility closure plan.

6. Inspection. The department shall inspect all solid waste management units at the time of closure to confirm that the closing is complete and adequate. It shall notify the owner of a closed facility, in writing, if the closure is satisfactory, and shall require any construction or such other steps necessary to bring unsatisfactory sites into compliance with these regulations. Notification by the department that the closure is satisfactory does not relieve the operator of responsibility for corrective action to prevent or abate problems caused by the facility.

7. Post-closure period. The post-closure care period begins on the date of the certification signed by a registered professional engineer as required in subdivision 5 d (4) of this subsection. Unless a facility completes all provisions of subdivision 5 of this subsection, the department will not consider the facility closed, and the beginning of the post-closure care period will be postponed until all provisions have been completed. If the department's inspection required by subdivision 6 of this subsection reveals that the facility has not been properly closed in accordance with this part, post closure will begin on the date that the department acknowledges proper closure has been completed.

F. Post-closure care requirements.

1. Following closure of all disposal units, the owner or operator shall conduct post-closure care of the facility. Post-closure care shall consist of at least the following:

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system in accordance with the requirements in 9 VAC 20-80-290 and 9 VAC 20-80-300. The director may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Monitoring the ground water in accordance with the requirements of subsection D of this section and maintaining the ground water monitoring system, if applicable; and

d. Maintaining and operating the gas monitoring system in accordance with the requirements of 9 VAC 20-80-280.

2. The post-closure care shall be conducted:

a. For 10 years in case of facilities that ceased to accept wastes before October 9, 1993; or

b. For 30 years in case of facilities that received wastes on or after October 9, 1993; or

c. As provided in subdivision 3 of this subsection.

3. The length of the post-closure care period may be:

a. Decreased by the director if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the director; or

b. Increased by the director if the director determines that the lengthened period is necessary to complete the corrective measures or to protect human health and the environment. If the post-closure period is increased, the owner or operator shall submit a revised post-closure plan for review and approval, and continue post-closure monitoring and maintenance in accordance with the approved plan.

4. The owner or operator shall prepare a written post-closure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subdivision 1 of this subsection for each disposal unit, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

c. A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements of this chapter. The director may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

5. The owner or operator shall submit a post-closure care plan for review and approval by the director whenever a post-closure care plan has been prepared or

amended. Those post-closure care plans that have been placed in a facility's operating record must be reviewed and approved by the director prior to implementation.

6. Following completion of the post-closure care period for each disposal unit, the owner or operator shall submit to the department a certificate, signed by a registered professional engineer, verifying that post-closure care has been completed in accordance with the post-closure plan. The certificate shall be accompanied by an evaluation, prepared by a professional engineer licensed in the Commonwealth and signed by the owner or operator, assessing and evaluating the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

Certified True and Accurate: _____

Robert G. Burnley, Director, DEQ

Date: _____